FIG. 1

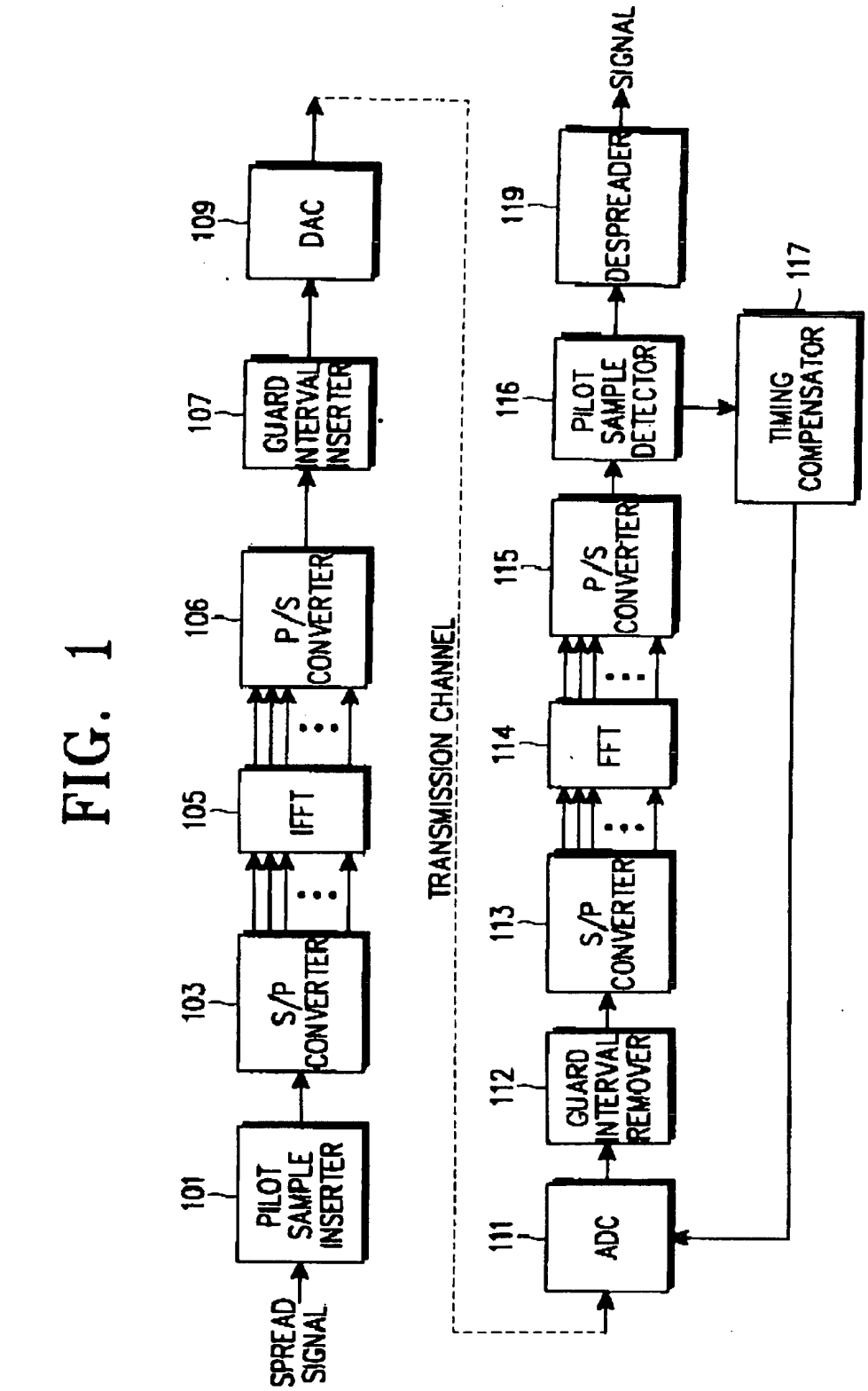
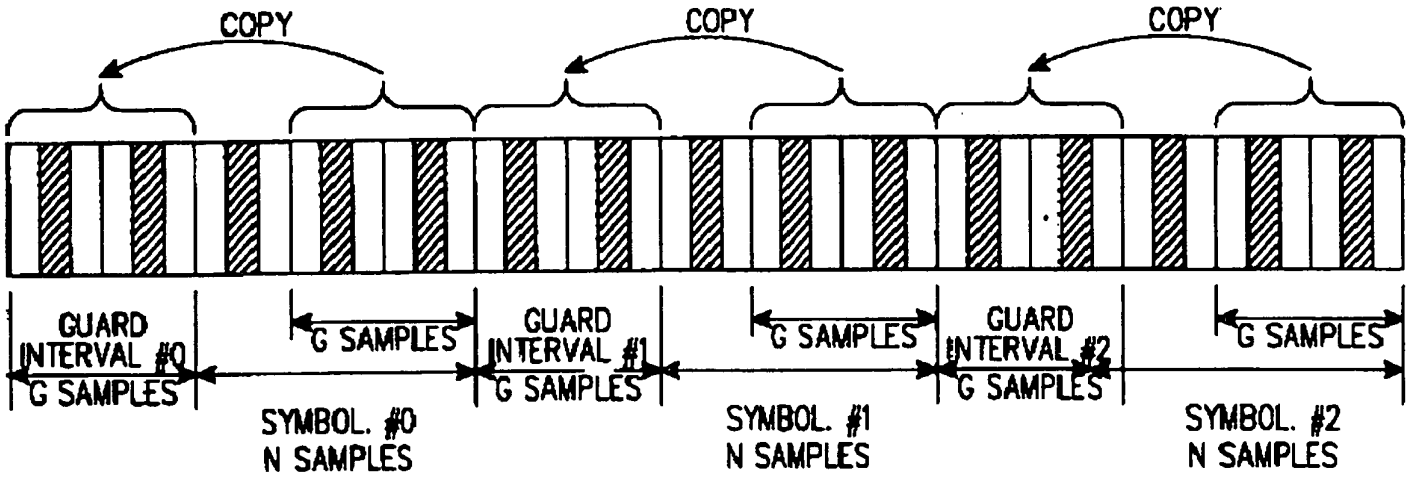

SPREAD SIGNAL
101
PILOT SAMPLE INSERTER
103
S/P CONVERTER
105
IFFT
106
P/S CONVERTER
107
GUARD INTERVAL INSERTER
109
DAC
TRANSMISSION CHANNEL
111
ADC
112
GUARD INTERVAL REMOVER
113
S/P CONVERTER
114
FFT
115
P/S CONVERTER
116
PILOT SAMPLE DETECTOR
117
TIMING COMPENSATOR
119
DESPREADER
SIGNAL

FIG. 2


COPY
COPY
COPY
GUARD INTERVAL #0
G SAMPLES
G SAMPLES
GUARD INTERVAL #1
G SAMPLES
G SAMPLES
GUARD INTERVAL #2
G SAMPLES
G SAMPLES
SYMBOL. #0
N SAMPLES
SYMBOL. #1
N SAMPLES
SYMBOL. #2
N SAMPLES

Sheet 3 of 5 Serial No. 08/...

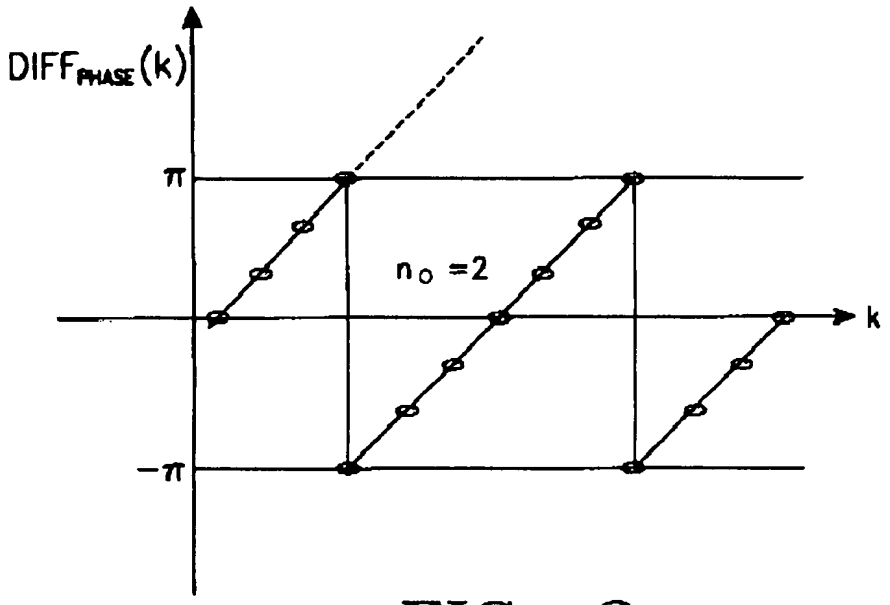


FIG. 3

FIG. 4

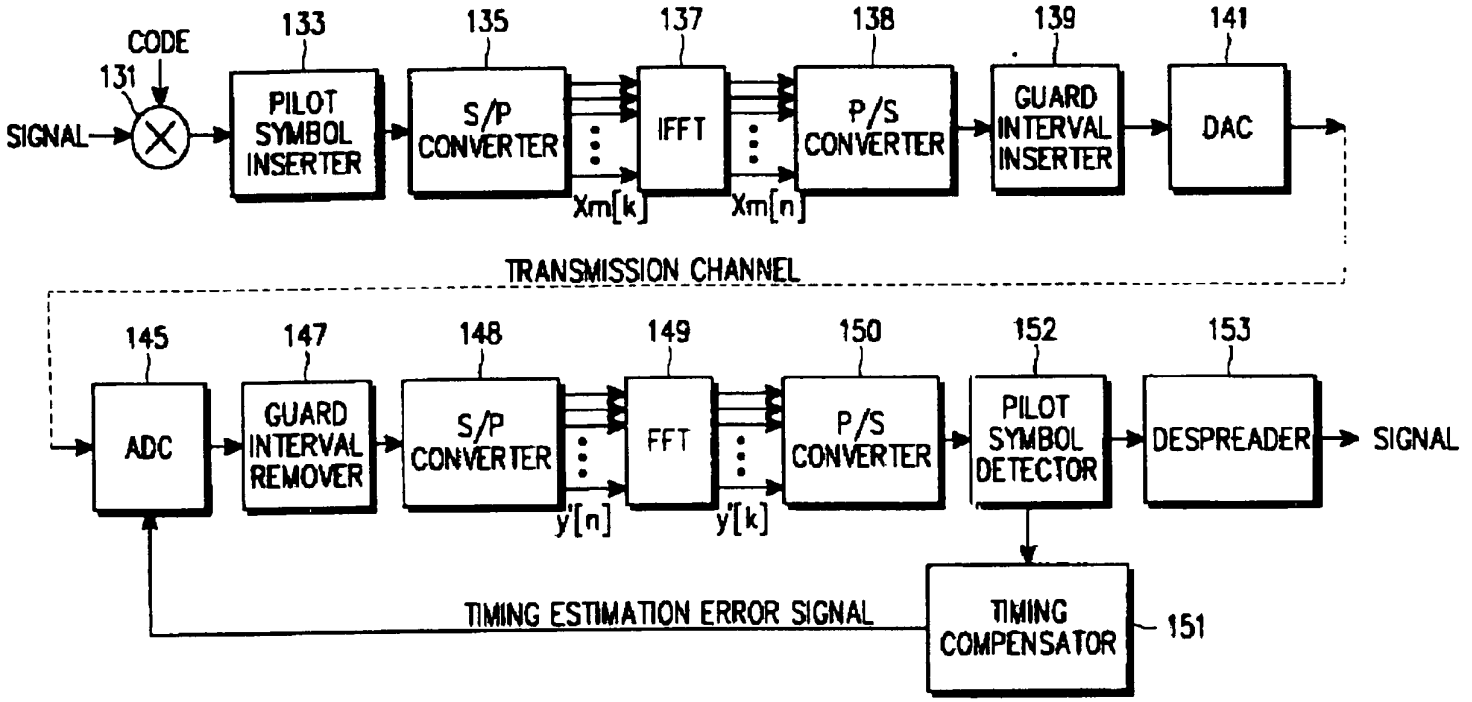
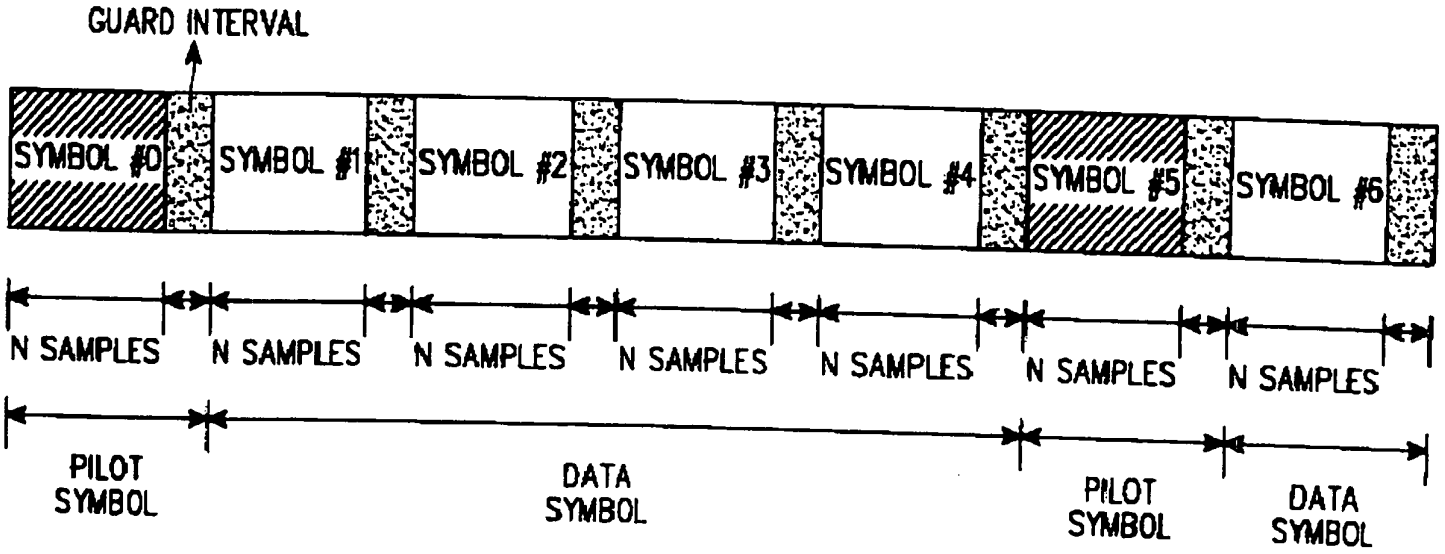

CODE
131
SIGNAL
133
PILOT SYMBOL INSERTER
135
S/P CONVERTER
Xm[k]
137
IFFT
Xm[n]
138
P/S CONVERTER
139
GUARD INTERVAL INSERTER
141
DAC
TRANSMISSION CHANNEL
145
ADC
147
GUARD INTERVAL REMOVER
148
S/P CONVERTER
y'[n]
149
FFT
y'[k]
150
P/S CONVERTER
152
PILOT SYMBOL DETECTOR
153
DESPREADER
SIGNAL
TIMING ESTIMATION ERROR SIGNAL
TIMING COMPENSATOR
151

FIG. 5


GUARD INTERVAL
SYMBOL #0
SYMBOL #1
SYMBOL #2
SYMBOL #3
SYMBOL #4
SYMBOL #5
SYMBOL #6
N SAMPLES
N SAMPLES
N SAMPLES
N SAMPLES
N SAMPLES
N SAMPLES
N SAMPLES
PILOT SYMBOL
DATA SYMBOL
PILOT SYMBOL
DATA SYMBOL

Doc 95-0595-US-PCT

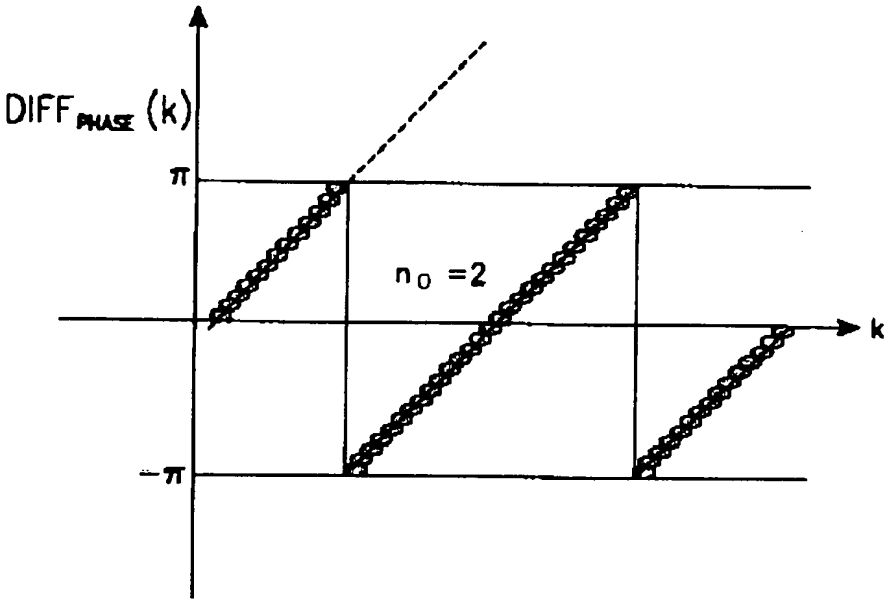
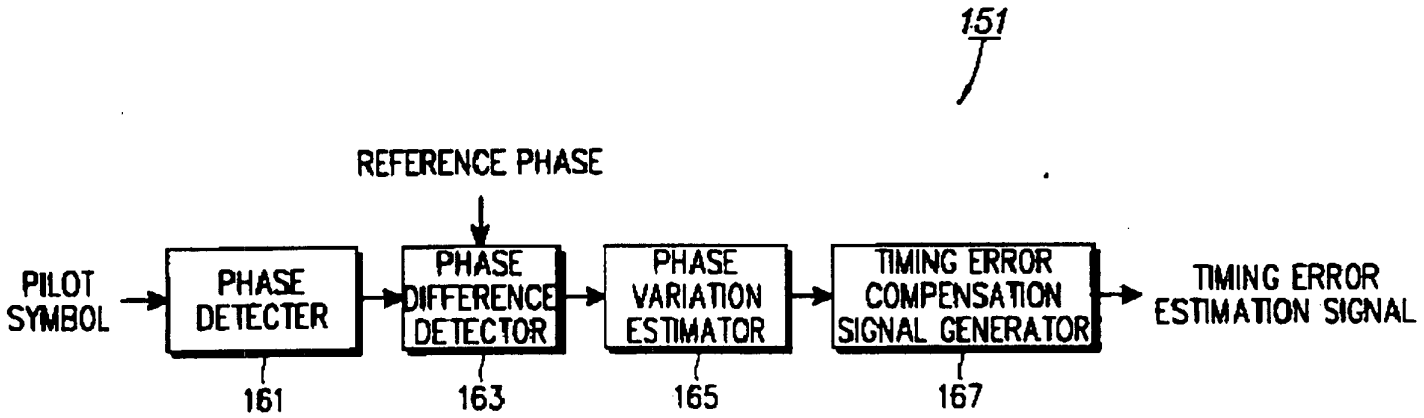


FIG. 6

006260 "S802260

FIG. 7



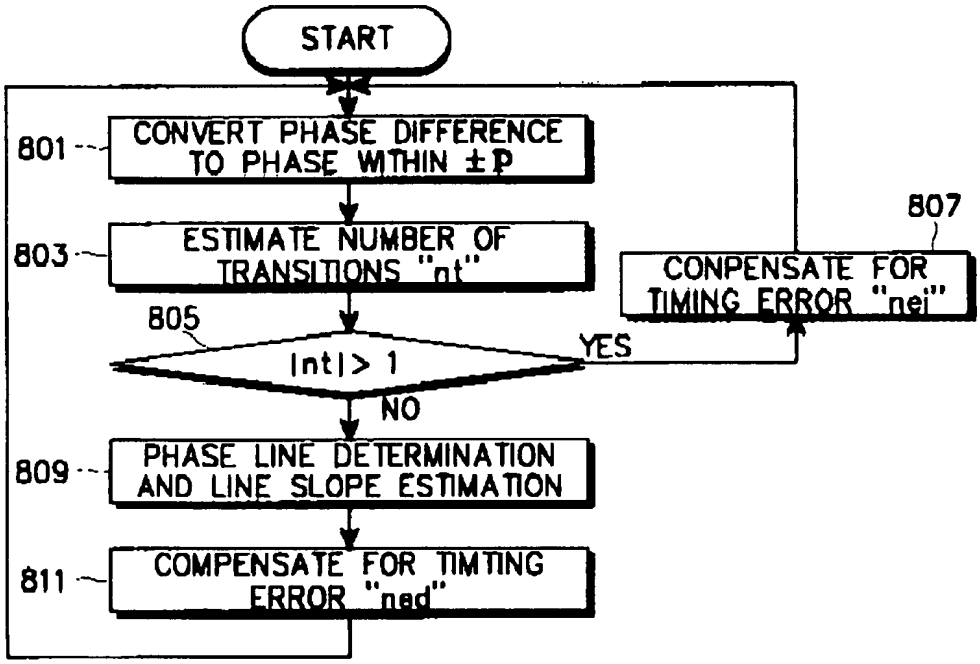

START
801
CONVERT PHASE DIFFERENCE TO PHASE WITHIN ±P
803
ESTIMATE NUMBER OF TRANSITIONS "nt"
805
|nt| > 1
YES
NO
807
CONPENSATE FOR TIMING ERROR "nei"
809
PHASE LINE DETERMINATION AND LINE SLOPE ESTIMATION
811
COMPENSATE FOR TIMTING ERROR "ned"

FIG. 8

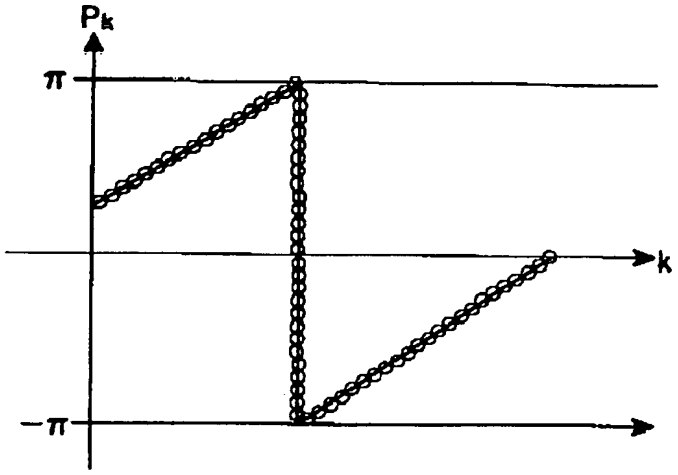


FIG. 9A

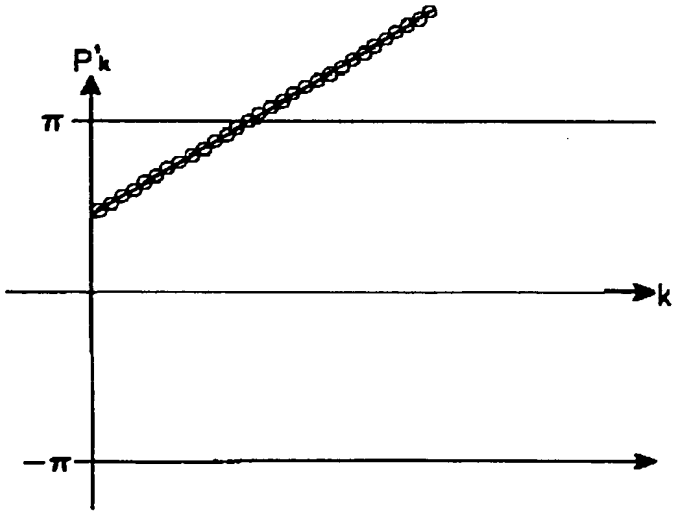


FIG. 9B